

Amendments to the Claims

The following listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20 (Canceled).

Claim 21 (New). A process for the removal and causticisation of sodium oxalate and/or sodium sulphate from a Bayer process liquor containing carbonate ions and oxalate and/or sulphate ions, the process comprising the steps of:

- (a) treating the Bayer process liquor to remove carbonate ions by forming carbonate-bearing solids;
- (b) separating the carbonate-bearing solids to form a clarified liquor containing residual carbonate ions and oxalate and/or sulphate ions;
- (c) adding lime to the clarified liquor to remove the residual carbonate ions and form reacted lime solids including the oxalate and/or sulphate ions; and,
- (d) separating the reacted lime solids to form a purified liquor.

Claim 22 (New). A process as defined in claim 21 wherein the carbonate-bearing solids include carbonate-bearing hydrocalumite and, after step (b), the process comprises a further step of recovering the separated carbonate-bearing hydrocalumite.

Claim 23 (New). A process as defined in claim 21, wherein step (a) further comprises the step of adding lime.

Claim 24 (New). A process as defined in claim 21, further comprising the step of enriching the Bayer process liquor with sulphate ions and/or oxalate ions.

Claim 25 (New). A process as defined in claim 24, wherein the step of enriching is conducted prior to and/or during step (a).

Claim 26 (New). A process as defined in claim 24, wherein the step of enriching is conducted prior to and/or during step (c).

Claim 27 (New). A process as defined in claim 21, wherein the Bayer process liquor has an 'S' concentration prior to step (a) of between 0 and 250 g/L.

Claim 28 (New). A process as defined in claim 27, wherein the S concentration is less than 150 g/L.

Claim 29 (New). A process as defined in claim 21, further comprising the step of maintaining the temperature of the Bayer process liquor in step (a) between 20°C and 180°C.

Claim 30 (New). A process as defined in claim 29, wherein the temperature of the Bayer process liquor in step (a) is maintained between 20°C and the atmospheric boiling point of the Bayer liquor.

Claim 31 (New). A process as defined in claim 30, wherein the temperature of the Bayer process liquor in step (a) is maintained between 20°C and 90°C.

Claim 32 (New). A process as defined in claim 31, wherein the temperature of the Bayer process liquor in step (a) is maintained between 50°C and 70°C.

Claim 33 (New). A process as defined in claim 21, wherein step (c) is conducted at a temperature between 20°C and 140°C.

Claim 34 (New). A process as defined in claim 33, wherein step (c) is conducted at a temperature between 50°C and 80°C.

Claim 35 (New). A process as defined in claim 21, wherein step (c) is conducted over a residence time of between 15 minutes and 4 hours.

Claim 36 (New). A process as defined in claim 35, wherein step (c) is conducted over a residence time of between 30 and 120 minutes.

Claim 37 (New). A process as defined in claim 36, wherein step (c) is conducted over a residence time of between 30 and 60 minutes.

Claim 38 (New). A process as defined in claim 21, further comprising the step of washing and drying the separated reacted lime solids.

Claim 39 (New). A process as defined in claim 22, wherein the Bayer liquor includes sulphate ions and the separated reacted lime solids include sulphate-bearing hydrocalumite.

Claim 40 (New). A process as defined in claim 39, further comprising the step of recovering the sulphate-bearing hydrocalumite after step (d).

Claim 41 (New). A process as defined in claim 21, wherein the carbonate-bearing solids include calcium carbonate.

Claim 42 (New). A process as defined in claim 29, further comprising the step of cooling the heated clarified liquor prior to step (c).

Claim 43 (New). A process as defined in claim 42, wherein the step of cooling the heated clarified liquor is conducted after step (b).

Claim 44 (New). A process as defined in claim 29, wherein the heated clarified liquor is cooled to a temperature between 30°C and 90°C.

Claim 45 (New). A process as defined in claim 42, wherein the heated clarified liquor is cooled to a temperature between 30°C and 90°C after step (b).

Claim 46 (New). A process as defined in claim 44, wherein the heated clarified liquor is cooled to a temperature between 50°C and 70°C.

Claim 47 (New). A process as defined in claim 45, wherein the heated clarified liquor is cooled to a temperature between 50°C and 70°C after step (b).

Claim 48 (New). A process as defined in claim 30, further comprising the step of cooling the heated clarified liquor prior to step (c).

Claim 49 (New). A process as defined in claim 48, wherein the step of cooling the heated clarified liquor is conducted after step (b).

Claim 50 (New). A process as defined in claim 30, wherein the heated clarified liquor is cooled to a temperature between 30°C and 90°C.

Claim 51 (New). A process as defined in claim 50, wherein the heated clarified liquor is cooled to a temperature between 30°C and 90°C after step (b).

Claim 52 (New). A process as defined in claim 21, further comprising the step of agitating the Bayer liquor during step (a) and/or step (c).

Claim 53 (New). A process as defined in claim 40, further comprising the step of recycling the recovered carbonate-bearing hydrocalumite and/or sulphate-bearing hydrocalumite within an alumina refinery.

Claim 54 (New). A process as defined in claim 40, further comprising the step of recycling the recovered sulphate-bearing hydrocalumite to step (a).